a dial-up client providing dialing services to access the remote access switch;

a custom script dynamically linked library providing an interface between the dial-up client and the client-side cryptographic function;

a security device holding authentication information;

a security device reader attached to the client computer for reading the security device; and

a directory service accessed by the server-side cryptographic function.

[c16] (Amended) The client computer of claim 15, further comprising:

a security device reader attached to the client computer for reading a security device.

[c18] (Amended) The client computer of claim 15, wherein the custom script dynamically linked library comprises a SDLogin component and a SDSetupDial component.

[c20] (Amended) A client computer comprising:

a dial-up client providing dialing services to the client computer;

a client-side cryptographic function providing cryptographic services located on the client computer;

a custom script dynamically linked library providing an interface between the dial-up client and the client-side cryptographic function; and

a security device reader attached to the client computer for reading a security device.

[c24] (Amended) A method of integrating via a dial-up interface, comprising:

sending session initiation information from a dial-up client to a PKI-Bridge;

checking session initiation information by the PKI-Bridge;

generating a challenge string by a server-side cryptographic function;

forwarding the challenge string to a custom script dynamically linked library;

forwarding the challenge string to a client-side cryptographic function from the custom script dynamically linked library;

utilizing a private key from a security device;

generating a response string;

signing the response string with the private key of a dial-in user;

forwarding a signed response string to the custom script dynamically linked library;

dividing the signed response string into packets;

forwarding packets to the PKI-Bridge;

reconstructing the signed response string from packets;

forwarding a reconstructed signed response string to the server-side cryptographic function;

obtaining a public key of the dial-in user; and

verifying the reconstructed signed response string using the server-side cryptographic function.

[c25] (Amended) The method of claim 24, further comprising:

reading the security device by a security device reader.

[c34] (Amended) A method of integrating via a dial-up interface, comprising:

sending session initiation information from a dial-up client to a PKI-Bridge;

checking session initiation information by the PKI-Bridge;

generating a challenge string by a server-side cryptographic function;

forwarding the challenge string to a custom script dynamically linked library;

forwarding the challenge string to a client-side cryptographic function from the custom script dynamically linked library;

utilizing a private key from a security device;

generating a response string;

signing the response string with the private key of a dial-in user;

forwarding a signed response string to the custom script dynamically linked library;

dividing the signed response string into packets;

forwarding packets to the PKI-Bridge;

reconstructing the signed response string from packets;

forwarding a reconstructed signed response string to the server-side cryptographic function;

obtaining a public key of the dial-in user;

verifying the reconstructed signed response string using the server-side cryptographic function;

reading the security device by a security device reader;

encoding the signed response string;

decoding the signed response string;

forwarding the challenge string to the dial-up client;

forwarding the challenge string to the PKI-Bridge; and

forwarding packets from the custom script dynamically linked library.

[c35] (Amended) An apparatus of integrating via a dial-up interface, comprising:

means for sending session initiation information from a dial-up client to a PKI-Bridge;

means for checking session initiation information by the PKI-Bridge;

means for generating a challenge string by a server-side cryptographic function;

means for forwarding the challenge string to a custom script dynamically linked library;

means for forwarding the challenge string to a client-side cryptographic function from the custom script dynamically linked library;

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means for utilizing a private key from a security device;

means for generating a response string;

means for signing the response string with the private key of a dial-in user;

means for forwarding a signed response string to the custom script dynamically linked library;

means for dividing the signed response string into packets;

means for forwarding packets to the PKI-Bridge;

means for reconstructing the signed response string from packets;

means for forwarding a reconstructed signed response string to the server-side cryptographic function;

means for obtaining a public key of the dial-in user; and

means for verifying the reconstructed signed response string using the server-side cryptographic function.